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COMPANY:	**DATE:**
USPTO	November 22, 2005
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10/075,150	004770.00040

RE: USSN 10/075,150 filed February 14, 2002 by Harri Pekonen
Entitled: Time-slice signaling for broadband digital broadcasting
Group Art Unit: 2665

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Total Number of Pages in This Submission: 58

Application Number	10/075,150
Filing Date	February 14, 2002
First Named Inventor	Harri Pekonen
Art Unit	2665
Examiner Name	Justin M. Philpott
Attorney Docket Number	004770.00040

ENCLOSURES *(check all that apply)*

- ☒ Fee Transmittal Form
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  - ☐ Affidavits/declaration(s)
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- ☐ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Reply to Missing Parts/ Incomplete Application
  - ☐ Reply to Missing Parts under 37 CFR1.52 or 1.53
- ☐ Drawing(s)
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- ☐ Petition to Convert to a Provisional Application
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- ☐ Proprietary Information
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Signature	[signature] 43,809		
Printed Name	William J. Klein		
Date	November 22, 2005	Reg. No.	43,719

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Typed or printed name	Diana Preston	Date	November 22, 2005

PTO/SB/17 (12-04v2)
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Effective on 12/08/2004.
Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL for FY 2005

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 500.00

Complete if Known	
Application Number	10/075,150
Filing Date	February 14, 2002
First Named Inventor	Harri Pekonen
Examiner Name	Justin M. Philpot
Art Unit	2665
Attorney Docket No.	004770.00040

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FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

	FILING FEES	Small Entity	SEARCH FEES	Small Entity	EXAMINATION FEES	Small Entity	
Application Type	Fee ($)	Fee($)	Fee($)	Fee($)	Fee($)	Fee($)	Fees Paid($)
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee ($)	Small Entity Fee ($)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	200	100
Multiple dependent claims	360	180

Total Claims	Extra Claims	Fee($)	Fee Paid ($)
____ - 20 or HP=	____	x ____	= ____

HP = highest number of total claims paid for, if greater than 20.

Indep. Claims	Extra Claims	Fee($)	Fee Paid ($)
____ - 3 or HP=	____	x ____	= ____

HP = highest number of independent claims paid for, if greater than 3.

Multiple Dependent Claims: Fee ($) ____ Fee Paid ($) ____

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee($)	Fee Paid ($)
____ - 100 =	____	/ 50 = ____ (round up to a whole number) x		= ____

4. OTHER FEE(S)

	Fees Paid ($)
Non-English Specification, $130 fee (no small entity discount)	
Other (e.g., late filing surcharge) : Appeal Brief	$500.00

SUBMITTED BY

Signature	[signature] 11.22.05	Registration No. (Attorney/Agent)	43,719	Telephone	(312) 463-5000
Name (Print/Type)	William J. Klein			Date	11/22/2005

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of: Harri Pekonen		Atty. Docket No.:	004770.00040
Serial No.:	10/075,150	Group Art Unit:	2665
Filed:	February 14, 2002	Examiner:	Justin M. Philpott
For:	Time-slice signaling for broadband digital broadcasting	Confirmation No.:	6898

BRIEF ON APPEAL

Mail Stop: Appeal Brief-Patents
Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

This is an appeal brief in accordance with 37 C.F.R. § 1.192 filed in support of applicant's October 12, 2005, Notice of Appeal. Appeal is taken from the final office action mailed July 12, 2005, and the advisory action mailed October 5, 2005. Please charge any necessary fees in connection with this appeal brief to our deposit account no. 19-0733.

I. REAL PARTY IN INTEREST

The owner of this application, and the real party in interest, is Nokia Corporation.

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals and interferences.

III. STATUS OF CLAIMS

Claims 1-51 were rejected under 35 U.S.C. 103(a) as being unpatentable over Veschi et al. (U.S. Patent 5,923,655) in view of Yano et al. (U.S. Patent 6,807,235).

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Applicant is appealing the rejection of claims 1-51. For the reasons set forth below, applicant respectfully submits that the final rejection of claims 1-51 is improper and should be reversed.

IV. STATUS OF AMENDMENTS

There are no amendments subsequent to the final office action dated July 12, 2005, and all prior amendments have been entered.

V. SUMMARY OF CLAIMED SUBJECT MATTER

In making reference herein to various portions of the specification and drawings in order to explain the claimed invention (as required by 37 C.F.R. § 41.37(c)(1)(v)), applicant does not intend to limit the claims; all references to the specification and drawings are illustrative unless otherwise explicitly stated.

Embodiments of the invention are related to transmission of audio data, video data, control data, or other information and, in particular, to signaling time-slice information for efficiently using information broadcasting resources. (Page 1, lines 4-6, i.e., paragraph [01]).

In accordance with embodiments of the invention, information is transmitted and received periodically in bursts to reduce receiver power consumption in a digital broadband broadcasting system. In such a system, a transmitter can communicate to a receiver accurate information regarding when the receiver should expect to receive transmission bursts. Providing this type of information is referred to as providing or signaling time-slice information. Based on received time-slice signaling information, the receiver can be powered down, which can include being put into a reduced power-consumption state, during idle time between receiving transmission bursts.

This advantageously results in reduced power consumption by the receiver. (Page 1, line 26, through page 2, line 7, i.e., paragraph [03]).

Time-slice information may be added to packet headers. The time-slice information may be relative timing information that corresponds to an amount of time between transmission of a current packet of a current burst from a data service and transmission of a first-transmitted packet of a subsequent burst from the data service. (Page 2, lines 8-12, i.e., paragraph [04]).

A transmitter-system component, such as a multi-protocol encapsulator, can encode time-slice information while forming packets to be transmitted in bursts. The encapsulator can include an elastic buffer that stores data from one or more information service providers. Such an elastic buffer can be large enough to store at least two bursts worth of information from substantially all of the information services for which the transmitter is transmitting bursts of information. When the encapsulator has received at least two bursts worth of information from an information service provider and has received whatever data the transmitter will send between two such bursts, the encapsulator can determine how much time will elapse between transmission of the first burst and transmission of the second burst. This time information can be added to one or more of the packets of a transmission burst. In this manner, encapsulated packets can carry accurate information regarding how much time will elapse between receiving a current burst and receiving a subsequent burst. (Page 2, lines 13-26, i.e., paragraph [05]).

Time-slice information can include the duration of a burst, an amount of time between original bursts, the time between an original burst and a copy of the burst, and numbering of original bursts. This type of time-slice information can be placed into packet headers, such as

one or more bytes reserved, but not used, for media access control addressing. (Page 2, line 27, through page 3, line 2, i.e., paragraph [06]).

Independent claim 1 is directed to a time-slicing digital video broadcasting transmitter system (page 8, line 20, through page 9, line 2, i.e., paragraph [46]) comprising: an encapsulator (page 11, line 3, through page 12, line 2, i.e., paragraphs [53-56]) that forms at least one packet header for a current packet (page 19, lines 14-17, i.e., paragraph [80]) of a current burst of packets (page 10, line 22, through page 11, line 2, i.e., paragraph [52]), wherein the at least one packet header contains a time-slice parameter specifying a relationship between the current packet of the current burst of packets and a subsequent burst of packets (page 22, line 16, through page 23, line 7, i.e., paragraph [90]) thereby allowing a digital-video-broadcast receiver (page 12, lines 12-27, i.e., paragraph [58]) to enter a reduced power-consumption state for a duration, which is based on the time-slice parameter, between receiving the current burst of packets and receiving the subsequent burst of packets. (Page 17, line 18, through page 18, line 3, i.e., paragraph [74]).

Independent claim 14 is directed to a mobile terminal (page 6, lines 23-25, i.e., paragraph [41]) that receives time-slicing digital video broadcast information, the mobile terminal comprising: a digital video broadcast receiver (page 12, lines 12-27, i.e., paragraph [58]) that receives a current burst of packets (page 10, line 22, through page 11, line 2, i.e., paragraph [52]) and a subsequent burst of packets, wherein the current burst of packets includes a current packet that includes at least one of digital video content and digital audio content (page 1, lines 14-21, i.e., paragraphs [01]-[02]) and that includes time-slice information, wherein the current burst of packets and the subsequent burst of packets have been transmitted by a digital video broadcast

transmitter (page 8, line 20, through page 9, line 2, i.e., paragraph [46]); a buffer (page 12, line 28, through page 13, line 19, i.e., paragraphs [59]-[60]) that receives the current burst of packets and the subsequent burst of packets; and an application processor that receives the current packet's buffered content and time-slice information from the buffer and that decodes (page 14, lines 10-15, i.e., paragraph [63]) the current packet's buffered time-slice information (page 22, line 16, through page 23, line 7, i.e., paragraph [90]) thereby extracting information that specifies a relationship between the current packet of the current burst of packets and the subsequent burst of packets, thereby allowing the mobile terminal to enter a reduced power-consumption state for a duration, which is based at least in part on the extracted information, between receiving the current burst of packets and receiving the subsequent burst of packets. (Page 17, line 18, through page 18, line 3, i.e., paragraph [74]).

Independent claim 24 is directed to a time-slicing digital video broadcasting system (page 8, line 20, through page 9, line 2, i.e., paragraph [46]) comprising: a digital video broadcast transmitter system (page 8, line 1, through page 12, line 11, i.e., paragraphs [45]-[57]) that transmits bursts of packets, including a current burst of packets (page 10, line 22, through page 11, line 2, i.e., paragraph [52]) and a subsequent burst of packets, wherein the current burst of packets includes a current packet (page 19, lines 14-17, i.e., paragraph [80]) that includes at least one of digital video content and digital audio content (page 1, lines 4-21, i.e., paragraphs [01]-[02]) from at least one data service of at least one information service provider and that includes time-slice information (page 22, line 16, through page 23, line 7, i.e., paragraph [90]) that specifies a relationship between the current packet of the current burst of packets and the subsequent burst of packets; and a digital video broadcast receiver system (page 12, line 12,

through page 14, line 15, i.e., paragraphs [58]-[63]) that receives the current burst of packets and the subsequent burst of packets and that decodes the time-slice information thereby extracting information that specifies the relationship between the current packet and the subsequent burst of packets (page 22, line 16, through page 23, line 7, i.e., paragraph [90]), thereby allowing the digital video broadcast receiver system to enter a reduced power-consumption state for a duration, which is based at least in part on the extracted information, between receiving the current burst of packets and receiving the subsequent burst of packets. (Page 17, line 18, through page 18, line 3, i.e., paragraph [74]).

Independent claim 30 is directed to a method of transmitting time-slicing digital video broadcast information, the method comprising: buffering at least one of digital video content and digital audio content (page 1, lines 4-21, i.e., paragraphs [01]-[02]) received from at least one information service provider; and forming a plurality of packets of a current burst of packets, wherein the plurality of packets includes portions of the buffered content and a plurality of respective packet headers for the plurality of packets (page 8, line 20, through page 12, line 11, i.e., paragraphs [46-57]), wherein the packet headers contain time-slice information that specifies a plurality of relationships between the plurality of packets of the current burst of packets and a subsequent burst of packets (page 22, line 16, through page 23, line 7, i.e., paragraph [90]), thereby allowing a digital-video-broadcast receiver to enter a reduced power-consumption state for a duration, which is based at least in part on the time-slice information, between receiving the current burst of packets and receiving the subsequent burst of packets. (Page 17, line 18, through page 18, line 3, i.e., paragraph [74]).

Independent claim 38 is directed to a method of receiving time-slicing digital video broadcast information (page 22, line 16, through page 23, line 7, i.e., paragraph [90]), the method comprising: receiving a current packet (page 19, lines 14-17, i.e., paragraph [80]) of a current burst of packets (page 10, line 22, through page 11, line 2, i.e., paragraph [52]) and a subsequent burst of packets, wherein the current packet includes time-slice information (page 22, line 16, through page 23, line 7, i.e., paragraph [90]), wherein the current packet and the subsequent burst of packets include at least one of digital video content and digital audio content (page 1, lines 4-21, i.e., paragraphs [01]-[02]) from an information service provider and have been transmitted by a digital video broadcast transmitter, wherein the time-slice information specifies a relationship between the current packet of the current burst of packets and the subsequent burst of packets (page 22, line 16, through page 23, line 7, i.e., paragraph [90]); buffering the time-slice information; and decoding (page 14, lines 10-15, i.e., paragraph [63]) the buffered time-slice information to extract information that specifies the relationship between the current packet and the subsequent burst of packets, thereby allowing a digital video broadcast receiver to enter a reduced power-consumption state for a duration, which is based at least in part on the extracted information, between receiving the current burst of packets and receiving the subsequent burst of packets. (Page 17, line 18, through page 18, line 3, i.e., paragraph [74]).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1) Claims 1-51 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Veschi et al. (U.S. Patent 5,923,655) in view of Yano et al. (U.S. Patent 6,807,235).

VII. ARGUMENT

A. Claims 1-13 patentably distinguish over Veschi in view of Yano because Veschi and Yano, either alone or in combination, do not disclose, teach, or suggest "an encapsulator ... that forms at least one packet header for a current packet of a current burst of packets, ... wherein the at least one packet header contains ... a time-slice parameter specifying a relationship between the current packet of the current burst of packets and a subsequent burst of packets ... thereby allowing a digital-video-broadcast receiver to enter a reduced power-consumption state for a duration, which is based at least in part on the time-slice parameter, between receiving the current burst of packets and receiving the subsequent burst of packets."

The Response to Arguments section of the final office action mailed July 12, 2005, states that "Yano teaches a parameter (e.g., within DPCCH, see FIG. 5) is received which allows the receiver to enter a reduced power-consumption state for a duration (e.g., see col. 5, line 57 – col. 6, line 14; and col. 6, lines 38-59) between a current burst of packets (e.g., DPDCH in a first slot of a frame) and a subsequent burst of packets (e.g., DPDCH in a subsequent slot). Veschi and Yano, however, do not support a proper prima facie case of obviousness of claim 1 because Veschi and Yano, either alone or in combination, do not teach or suggest "an encapsulator ... that forms at least one packet header for a current packet of a current burst of packets, .. wherein the at least one packet header contains ... a time-slice parameter specifying a relationship between the current packet of the current burst of packets and a subsequent burst of packets ... thereby allowing a digital-video-broadcast receiver to enter a reduced power-consumption state for a duration, which is based at least in part on the time-slice parameter, between receiving the current burst of packets and receiving the subsequent burst of packets."

Claim 1 recites a time-slicing digital video broadcasting transmitter system comprising: an encapsulator that forms at least one packet header for a current packet of a current burst of

packets, wherein the at least one packet header contains a time-slice parameter specifying a relationship between the current packet of the current burst of packets and a subsequent burst of packets thereby allowing a digital-video-broadcast receiver to enter a reduced power-consumption state for a duration, which is based on the time-slice parameter, between receiving the current burst of packets and receiving the subsequent burst of packets.

Veschi and Yano do not teach or suggest the time-slice parameter of claim 1 as described above. On pages 2 and 4, the office action states that "Yano ... teaches a parameter (e.g., within DPCCH, see FIG. 5) received allows the receiver to enter a reduced power-consumption state for a duration (e.g., see col. 5, line 57 - col. 6, line 14; and col. 6, lines 38-59) between a current burst of packets (e.g., DPDCH data in a first slot of a frame) and a subsequent burst of packets (e.g., DPDCH data in a subsequent slot)."

Yano discloses a system in which a portion of the receiver is always on checking for the presence of control information and data information. This checking occurs at the beginning of each frame of packets. Based on a change in the presence or absence of control and/or data information at the beginning of each frame of packets, signal-processing components of the receiver either enter or exit power-saving mode.

"DPCCH" refers to control information. (Yano, col. 1, lines 64-67) But DPCCH does not include any type of time-slice parameter whatsoever. A transition from the presence of DPCCH (i.e., control information) and/or DPDCH (i.e., data information) to the absence of DPCCH and/or DPDCH from the received signal is what causes the system disclosed by Yano to enter a reduced power-consumption state. A corresponding transition from the absence to the

presence of DPCCH and/or DPDCH causes the system disclosed by Yano to exit the reduced power-consumption state.

As such, Yano, either alone or in combination with Veschi, does not teach a time-slice parameter that is within a packet header of a current packet of a current burst of packets and that specifies a relationship between the current packet of the current burst of packets and a subsequent burst of packets thereby allowing a digital-video-broadcast receiver to enter a reduced power-consumption state for a duration, which is based on the time-slice parameter, between receiving the current burst of packets and receiving the subsequent burst of packets.

Applicant respectfully disagrees with virtually the entire Response to Arguments section of the final office action mailed July 12, 2005. In pertinent part, that section characterizes applicant's remarks, which appear at pages 11-13 of the Amendment filed May 16, 2005, as setting forth an interpretation in which a "time based parameter" is not received between current and subsequent bursts of packets. Applicant respectfully disagrees with that characterization.

Claim 1 recites that the receiver enters the reduced power-consumption state between receiving the current burst of packets and receiving the subsequent burst of packets, and the duration of the reduced power-consumption is based on the time-slice parameter which is contained in the current packet's header. As discussed in more detail above, Veschi and Yano, either alone or in combination, do not teach or suggest a time-slice parameter that is contained in the current packet's header and that specifies a relationship between the current packet of the current burst of packets and a subsequent burst of packets thereby allowing a digital-video-broadcast receiver to enter a reduced power-consumption state for a duration, which is based on

the time-slice parameter, between receiving the current burst of packets and receiving the subsequent burst of packets.

The invention as recited in claim 1 provides a significant functional advantage over the combination of Veschi and Yano proposed in the final office action mailed July 12, 2005. During any period between transmission of bursts of packets, the combination of Veschi and Yano proposed in the final office action mailed July 12, 2005, would need to continuously receive and monitor any received data to determine when the transmitter has started transmitting the subsequent burst of packets. The invention recited in claim 1 specifies in the current packet's header a relationship between the current packet of the current burst of packets and a subsequent burst of packets thereby allowing a digital-video-broadcast receiver to enter a reduced power-consumption state for a duration, which is based on the time-slice parameter, between receiving the current burst of packets and receiving the subsequent burst of packets. Therefore, unlike the proposed combination of Veschi and Yano, the invention of claim 1 does not require a receiver to receive data and monitor the received data between receiving the current and subsequent bursts of packets in order to determine when transmission of the subsequent burst of packets has begun.

For at least the foregoing reasons, applicant respectfully submits that Veschi and Yano, either alone or in combination, fail to establish prima facie obviousness of claim 1 which is, therefore, in condition for allowance.

Claims 2-13 properly depend upon independent claim 1. These dependent claims are, therefore, in condition for allowance for at least the reasons set forth above in connection with claim 1.

1. **Claim 5 patentably distinguishes over Veschi in view of Yano because Veschi and Yano, either alone or in combination, do not disclose, teach, or suggest that a buffer that "is substantially large enough to store at least two full bursts of data from the information service provider and any data to be transmitted between transmission of the two full bursts of data."**

The office action mailed July 12, 2005, rejected claim 5 based on the rationale that "the buffer of Veschi is inherently large enough to store at least two full bursts of data from the information service provider and any data to be transmitted between transmission of the two full bursts of data (e.g., see col. 10, lines 32-36 regarding queuing data packets having position identifiers)." Applicant respectfully disagrees. The cited portion of Veschi, which discloses queuing data packets having position identifiers and which is reproduced below does not disclose, teach, or suggest, either explicitly or inherently, a buffer that is large enough to store at least two full bursts of data from an information service provider and any data to be transmitted between transmission of the two full bursts of data:

> As stated above, the packet assembly circuit generates a position identifier 370 that indicates a temporal position of the portion relative to the stream, inserts the position identifier 370 into the data packet and queues the data packet in the Ethernet controller for transmission through the Ethernet backbone 110.

As such, Veschi does not disclose, either explicitly or inherently, any information about the size of the buffer, including any information regarding the size of the buffer relative to the size of two full bursts of data from an information service provider and/or any data to be transmitted between transmission of the two full bursts of data.

For at least the foregoing additional reasons, applicant respectfully submits that Veschi and Yano, either alone or in combination, fail to establish prima facie obviousness of claim 5, which is, therefore, in condition for allowance.

2. **Claims 9-11 patentably distinguish over Veschi in view of Yano because Veschi and Yano, either alone or in combination, do not disclose, teach, or suggest placing the time-slice information into lower-layer protocol packet header bits.**

The final office action mailed July 12, 2005, admits that "Veschi may not specifically disclose the encapsulator places the time-slice information (e.g., position identifier 370) into lower layer protocol packet header bits, rather Veschi rather discloses time-slice information is provided within message 330 (e.g., FIG. 3)." (Office action, page 6). The office action then states that "it would have been obvious to one of ordinary skill in the art to shift the location of the position identifier 370 from message portion 330 to header portion 310 (see FIG. 3) since it is generally considered to be within the ordinary skill in the art to shift the location of parts absent a showing of unexpected results." (Office action, pages 6-7).

Placing the time-slice information into lower layer protocol packet header bits does, however, reduce inter-processor latency relative to placing time-slice information in higher layer protocol packet header bits and/or including the time-slice information with the data portion of a packet, as is stated in paragraphs 41-43, which are reproduced below, of the written description of this application (i.e., application serial no. 10/075,150):

> Referring to Fig. 3, a terminal 12, which can be a mobile terminal, such as a cellular telephone, a personal digital assistant, a portable computer, and the like, includes a receiver 14, a client 16, and an antenna 19. A digital broadband broadcast signal 22 is also shown. In the receiver 14, a processor can perform part of the data path processing and can handle lower level protocols, such as layer 2 information, which can include digital video broadcasting digital storage media command and control (DVB DSM-CC) section protocol packets, service information (SI) tables, and multi protocol encapsulated (MPE) packets. Software running on the client 16 can handle layer 3 and higher layers including TCP/IP and application-specific layers. Passing time-slice information, which is specified in absolute—rather than relative—terms, between the processors of the receiver 14 and the client 16 typically introduces undesirable latency into the time-slice information due to potentially variable latency between the two processors.

> The amount of time it takes to transfer data between processors may contribute to this type of undesirable latency. For example, when a first processor requests a data bus that is shared between the first processor and a second processor, the bus may be busy performing a different transfer. This type of situation can introduce a variable amount of latency before the first processor can acquire the data bus to perform the desired data transfer. In addition, software latency may be caused by software not reacting immediately to requests, such as a time-slice-reception interrupt. Delays in servicing interrupts can be caused by execution of non-interruptible software by the receiver 14 or the client 16 or by both the receiver 14 and the client 16.
>
> There are also proposals to add time slice information into a higher layer protocol. A problem with these proposed solutions is that higher-level protocols are handled with higher-level software, which is typically run by the client 16. As discussed above, there is variable latency when transferring information between the receiver 14 and client 16. So, when transferring time-slice information from the client 16 to the receiver 14, maintaining accurate time information may not be possible.

For at least these additional foregoing reasons, applicant respectfully submits that Veschi and Yano, either alone or in combination, fail to establish prima facie obviousness of claim 9, which is, therefore, in condition for allowance.

Claims 10-11 properly depend upon independent claim 9. These dependent claims are, therefore, in condition for allowance for at least the reasons set forth above in connection with claim 9.

3. **Claim 11 patentably distinguishes over Veschi in view of Yano because Veschi and Yano, either alone or in combination, do not disclose, teach, or suggest that "the time-slice information is placed into at least one byte reserved, but not used, for media access control addressing."**

The office action mailed July 12, 2005, rejected claim 11 based on the rationale that "while Veschi in view of Yano may not specifically disclose time-slice information (e.g., position identifier 370) is placed into at least one byte reserved but not used for media access control addressing, Veschi suggests such a feature by providing reserved/length field 340

comprising at least one reserved byte for media access control addressing (e.g., see col. 11, line 1-col. 12, line 30)." Applicant respectfully disagrees because "providing reserved/length field 340 comprising at least one reserved byte for media access control addressing" does not disclose, teach, or suggest that "the time-slice information is placed into at least one byte reserved, but not used, for media access control addressing."

For at least the foregoing additional reasons, applicant respectfully submits that Veschi and Yano, either alone or in combination, fail to establish prima facie obviousness of claim 11, which is, therefore, in condition for allowance.

B. **Claims 14-23 patentably distinguish over Veschi in view of Yano because Veschi and Yano, either alone or in combination, do not disclose, teach, or suggest "a mobile terminal ... comprising: a digital video broadcast receiver that receives a current burst of packets and a subsequent burst of packets, wherein the current burst of packets includes a current packet ..., that includes time-slice information; and an application processor ... that decodes the current packet's buffered time-slice information thereby extracting information that specifies a relationship between the current packet of the current burst of packets and the subsequent burst of packets, thereby allowing the mobile terminal to enter a reduced power-consumption state for a duration, which is based at least in part on the extracted information, between receiving the current burst of packets and receiving the subsequent burst of packets."**

The Response to Arguments section of the final office action mailed July 12, 2005, states that "Yano teaches a parameter (e.g., within DPCCH, see FIG. 5) is received which allows the receiver to enter a reduced power-consumption state for a duration (e.g., see col. 5, line 57 – col. 6, line 14; and col. 6, lines 38-59) between a current burst of packets (e.g., DPDCH in a first slot of a frame) and a subsequent burst of packets (e.g., DPDCH in a subsequent slot). Veschi and Yano, however, do not support a proper prima facie case of obviousness of claim 14 because Veschi and Yano, either alone or in combination, do not teach or suggest "a mobile terminal ...

comprising: a digital video broadcast receiver that receives a current burst of packets and a subsequent burst of packets, wherein the current burst of packets includes a current packet ... that includes time-slice information; and an application processor ... that decodes the current packet's buffered time-slice information thereby extracting information that specifies a relationship between the current packet of the current burst of packets and the subsequent burst of packets, thereby allowing the mobile terminal to enter a reduced power-consumption state for a duration, which is based at least in part on the extracted information, between receiving the current burst of packets and receiving the subsequent burst of packets."

Claim 14 recites a mobile terminal that receives time-slicing digital video broadcast information, the mobile terminal comprising: a digital video broadcast receiver that receives a current burst of packets and a subsequent burst of packets, wherein the current burst of packets includes a current packet that includes at least one of digital video content and digital audio content and that includes time-slice information, wherein the current burst of packets and the subsequent burst of packets have been transmitted by a digital video broadcast transmitter; a buffer that receives the current burst of packets and the subsequent burst of packets; and an application processor that receives the current packet's buffered content and time-slice information from the buffer and that decodes the current packet's buffered time-slice information thereby extracting information that specifies a relationship between the current packet of the current burst of packets and the subsequent burst of packets, thereby allowing the mobile terminal to enter a reduced power-consumption state for a duration, which is based at least in part on the extracted information, between receiving the current burst of packets and receiving the subsequent burst of packets.

Veschi and Yano do not teach or suggest the time-slice information of claim 14 as described above. On pages 2 and 4, the office action states that "Yano .. teaches a parameter (e.g., within DPCCH, see FIG. 5) received allows the receiver to enter a reduced power-consumption state for a duration (e.g., see col. 5, line 57 - col. 6, line 14; and col. 6, lines 38-59) between a current burst of packets (e.g., DPDCH data in a first slot of a frame) and a subsequent burst of packets (e.g., DPDCH data in a subsequent slot)."

Yano discloses a system in which a portion of the receiver is always on checking for the presence of control information and data information. This checking occurs at the beginning of each frame of packets. Based on a change in the presence or absence of control and/or data information at the beginning of each frame of packets, signal-processing components of the receiver either enter or exit power-saving mode.

"DPCCH" refers to control information. (Yano, col. 1, lines 64-67) But DPCCH does not include any type of time-slice parameter whatsoever. A transition from the presence of DPCCH (i.e., control information) and/or DPDCH (i.e., data information) to the absence of DPCCH and/or DPDCH from the received signal is what causes the system disclosed by Yano to enter a reduced power-consumption state. A corresponding transition from the absence to the presence of DPCCH and/or DPDCH causes the system disclosed by Yano to exit the reduced power-consumption state.

As such, Yano, either alone or in combination with Veschi, does not teach time-slice information that is within a packet header of a current packet of a current burst of packets and that specifies a relationship between the current packet of the current burst of packets and a subsequent burst of packets thereby allowing a digital-video-broadcast receiver to enter a reduced

power-consumption state for a duration, which is based on information extracted from the time-slice information, between receiving the current burst of packets and receiving the subsequent burst of packets.

Applicant respectfully disagrees with virtually the entire Response to Arguments section of the final office action mailed July 12, 2005. In pertinent part, that section characterizes applicant's remarks, which appear at pages 11-13 of the Amendment filed May 10, 2005, as setting forth an interpretation in which a "time based parameter" is not received between current and subsequent bursts of packets. Applicant respectfully disagrees with that characterization.

Claim 14 recites that the mobile terminal is allowed to enter a reduced power-consumption state between receiving the current burst of packets and receiving the subsequent burst of packets, and the duration of the reduced power-consumption is based on information extracted from the time-slice information, which is contained in the current packet's header. As discussed in more detail above, Veschi and Yano, either alone or in combination, do not teach or suggest time-slice information that is contained in the current packet's header and that specifies a relationship between the current packet of the current burst of packets and .. subsequent burst of packets thereby allowing a mobile terminal to enter a reduced power-consumption state for a duration, which is based on information extracted from the time-slice information, between receiving the current burst of packets and receiving the subsequent burst of packets.

The invention as recited in claim 14 provides a significant functional advantage over the combination of Veschi and Yano proposed in the final office action mailed July 12, 2005. During any period between transmission of bursts of packets, the combination of Veschi and Yano proposed in the final office action mailed July 12, 2005, would need to continuously

receive and monitor any received data to determine when the transmitter has started transmitting the subsequent burst of packets. The invention recited in claim 14 specifies in the current packet's header a relationship between the current packet of the current burst of packets and a subsequent burst of packets thereby allowing the mobile terminal to enter a reduced power-consumption state for a duration, which is based on information extracted from the time-slice information, between receiving the current burst of packets and receiving the subsequent burst of packets. Therefore, unlike the proposed combination of Veschi and Yano, the invention of claim 14 does not require a mobile terminal to receive data and monitor the received data between receiving the current and subsequent bursts of packets in order to determine when transmission of the subsequent burst of packets has begun.

For at least the foregoing reasons, applicant respectfully submits that Veschi and Yano, either alone or in combination, fail to establish prima facie obviousness of claim 14 which is, therefore, in condition for allowance.

Claims 15-23 properly depend upon independent claim 14. Claims 15-23 are, therefore, in condition for allowance for at least the reasons set forth above in connection with claim 14.

1. **Claims 21-23 patentably distinguish over Veschi in view of Yano because Veschi and Yano, either alone or in combination, do not disclose, teach, or suggest decoding the time-slice information from lower-layer protocol packet header bits.**

The final office action mailed July 12, 2005, admits that "Veschi may not specifically disclose the encapsulator places the time-slice information (e.g., position identifier 370) into lower layer protocol packet header bits, rather Veschi rather discloses time-slice information is provided within message 330 (e.g., FIG. 3)." (Office action, page 6). The office action then

states that "it would have been obvious to one of ordinary skill in the art to shift the location of the position identifier 370 from message portion 330 to header portion 310 (see FIG. 3) since it is generally considered to be within the ordinary skill in the art to shift the location of parts absent a showing of unexpected results." (Office action, pages 6-7).

Placing the time-slice information into lower layer protocol packet header bits does, however, reduce inter-processor latency relative to placing time-slice information in higher layer protocol packet header bits and/or including the time-slice information with the data portion of a packet, as is stated in paragraphs 41-43, which are reproduced below, of the written description of this application (i.e., application serial no. 10/075,150):

> Referring to Fig. 3, a terminal 12, which can be a mobile terminal, such as a cellular telephone, a personal digital assistant, a portable computer and the like, includes a receiver 14, a client 16, and an antenna 19. A digital broadband broadcast signal 22 is also shown. In the receiver 14, a processor can perform part of the data path processing and can handle lower level protocols, such as layer 2 information, which can include digital video broadcasting digital storage media command and control (DVB DSM-CC) section protocol packets, service information (SI) tables, and multi protocol encapsulated (MPE) packets. Software running on the client 16 can handle layer 3 and higher layers including TCP/IP and application-specific layers. Passing time-slice information, which is specified in absolute—rather than relative—terms, between the processors of the receiver 14 and the client 16 typically introduces undesirable latency into the time-slice information due to potentially variable latency between the two processors.
>
> The amount of time it takes to transfer data between processors may contribute to this type of undesirable latency. For example, when a first processor requests a data bus that is shared between the first processor and a second processor, the bus may be busy performing a different transfer. This type of situation can introduce a variable amount of latency before the first processor can acquire the data bus to perform the desired data transfer. In addition, software latency may be caused by software not reacting immediately to requests, such as a time-slice-reception interrupt. Delays in servicing interrupts can be caused by execution of non-interruptible software by the receiver 14 or the client 16 or by both the receiver 14 and the client 16.
>
> There are also proposals to add time slice information into a higher layer protocol. A problem with these proposed solutions is that higher-level protocols are handled with higher-level software, which is typically run by the client 16. As

> discussed above, there is variable latency when transferring information between the receiver 14 and client 16. So, when transferring time-slice information from the client 16 to the receiver 14, maintaining accurate time information may not be possible.

For at least these additional foregoing reasons, applicant respectfully submits that Veschi and Yano, either alone or in combination, fail to establish prima facie obviousness of claim 21, which is, therefore, in condition for allowance.

Claims 22-23 properly depend upon independent claim 21. These dependent claims are, therefore, in condition for allowance for at least the reasons set forth above in connection with claim 21.

2. **Claim 23 patentably distinguishes over Veschi in view of Yano because Veschi and Yano, either alone or in combination, do not disclose, teach, or suggest that "the time-slice information is decoded from at least one byte reserved, but not used, for media access control addressing."**

The office action mailed July 12, 2005, rejected claim 23 based on the rationale that "while Veschi in view of Yano may not specifically disclose time-slice information (e.g., position identifier 370) is placed into at least one byte reserved but not used for media access control addressing, Veschi suggests such a feature by providing reserved/length field 340 comprising at least one reserved byte for media access control addressing (e.g., see col. 11, line 1-col. 12, line 30)." Applicant respectfully disagrees because "providing reserved/length field 340 comprising at least one reserved byte for media access control addressing" does not disclose, teach, or suggest that "the time-slice information is decoded from at least one byte reserved, but not used, for media access control addressing."

For at least the foregoing additional reasons, applicant respectfully submits that Veschi and Yano, either alone or in combination, fail to establish prima facie obviousness of claim 23, which is, therefore, in condition for allowance.

C. **Claims 24-29 patentably distinguish over Veschi in view of Yano because Veschi and Yano, either alone or in combination, do not disclose, teach, or suggest a "time-slicing digital video broadcasting system comprising: a digital video broadcast transmitter system that transmits bursts of packets, including a current burst of packets and a subsequent burst of packets, wherein the current burst of packets includes a current packet ..., that includes time-slice information that specifies a relationship between the current packet of the current burst of packets and the subsequent burst of packets; and a digital video broadcast receiver system ... that decodes the time-slice information thereby extracting information that specifies the relationship between the current packet and the subsequent burst of packets, thereby allowing the digital video broadcast receiver system to enter a reduced power-consumption state for a duration, which is based at least in part on the extracted information, between receiving the current burst of packets and receiving the subsequent burst of packets."**

The Response to Arguments section of the final office action mailed July 12, 2005, states that "Yano teaches a parameter (e.g., within DPCCH, see FIG. 5) is received which allows the receiver to enter a reduced power-consumption state for a duration (e.g., see col. 5, line 57 – col. 6, line 14; and col. 6, lines 38-59) between a current burst of packets (e.g., DPDCH in a first slot of a frame) and a subsequent burst of packets (e.g., DPDCH in a subsequent slot). Veschi and Yano, however, do not support a proper prima facie case of obviousness of claim 24 because Veschi and Yano, either alone or in combination, do not teach or suggest a "time-slicing digital video broadcasting system comprising: a digital video broadcast transmitter system that transmits bursts of packets, including a current burst of packets and a subsequent burst of packets, wherein the current burst of packets includes a current packet ... that includes time-slice information that specifies a relationship between the current packet of the current burst of packets and the

subsequent burst of packets; and a digital video broadcast receiver system ... that decodes the time-slice information thereby extracting information that specifies the relationship between the current packet and the subsequent burst of packets, thereby allowing the digital video broadcast receiver system to enter a reduced power-consumption state for a duration, which is based at least in part on the extracted information, between receiving the current burst of packets and receiving the subsequent burst of packets."

Claim 24 recites a time-slicing digital video broadcasting system comprising: a digital video broadcast transmitter system that transmits bursts of packets, including a current burst of packets and a subsequent burst of packets, wherein the current burst of packets includes a current packet that includes at least one of digital video content and digital audio content from at least one data service of at least one information service provider and that includes time-slice information that specifies a relationship between the current packet of the current burst of packets and the subsequent burst of packets; and a digital video broadcast receiver system that receives the current burst of packets and the subsequent burst of packets and that decodes the time-slice information thereby extracting information that specifies the relationship between the current packet and the subsequent burst of packets, thereby allowing the digital video broadcast receiver system to enter a reduced power-consumption state for a duration, which is based at least in part on the extracted information, between receiving the current burst of packets and receiving the subsequent burst of packets.

Veschi and Yano do not teach or suggest the time-slice parameter of claim 24 as described above. On pages 2 and 4, the office action states that "Yano ... teaches a parameter (e.g., within DPCCH, see FIG. 5) received allows the receiver to enter a reduced power-

consumption state for a duration (e.g., see col. 5, line 57 - col. 6, line 14; and col. 6, lines 38-59) between a current burst of packets (e.g., DPDCH data in a first slot of a frame) and a subsequent burst of packets (e.g., DPDCH data in a subsequent slot)."

Yano discloses a system in which a portion of the receiver is always on checking for the presence of control information and data information. This checking occurs at the beginning of each frame of packets. Based on a change in the presence or absence of control and/or data information at the beginning of each frame of packets, signal-processing components of the receiver either enter or exit power-saving mode.

"DPCCH" refers to control information. (Yano, col. 1, lines 64-67) But DPCCH does not include any type of time-slice parameter whatsoever. A transition from the presence of DPCCH (i.e., control information) and/or DPDCH (i.e., data information) to the absence of DPCCH and/or DPDCH from the received signal is what causes the system disclosed by Yano to enter a reduced power-consumption state. A corresponding transition from the absence to the presence of DPCCH and/or DPDCH causes the system disclosed by Yano to exit the reduced power-consumption state.

As such, Yano, either alone or in combination with Veschi, does not teach a time-slice parameter that is within a packet header of a current packet of a current burst of packets and that specifies a relationship between the current packet of the current burst of packets and a subsequent burst of packets thereby allowing a digital-video-broadcast receiver to enter a reduced power-consumption state for a duration, which is based on information extracted from the time-slice parameter, between receiving the current burst of packets and receiving the subsequent burst of packets.

Applicant respectfully disagrees with virtually the entire Response to Arguments section of the final office action mailed July 12, 2005. In pertinent part, that section characterizes applicant's remarks, which appear at pages 11-13 of the Amendment filed May 16, 2005, as setting forth an interpretation in which a "time based parameter" is not received between current and subsequent bursts of packets. Applicant respectfully disagrees with that characterization.

Claim 24 recites that the mobile terminal is allowed to enter a reduced power-consumption state between receiving the current burst of packets and receiving the subsequent burst of packets, and the duration of the reduced power-consumption is based on information extracted from the time-slice information, which is contained in the current packet's header. As discussed in more detail above, Veschi and Yano, either alone or in combination, do not teach or suggest time-slice information that is contained in the current packet's header and that specifies a relationship between the current packet of the current burst of packets and a subsequent burst of packets thereby allowing a mobile terminal to enter a reduced power-consumption state for a duration, which is based on information extracted from the time-slice information, between receiving the current burst of packets and receiving the subsequent burst of packets.

The invention as recited in claim 24 provides a significant functional advantage over the combination of Veschi and Yano proposed in the final office action mailed July 12, 2005. During any period between transmission of bursts of packets, the combination of Veschi and Yano proposed in the final office action mailed July 12, 2005, would need to continuously receive and monitor any received data to determine when the transmitter has started transmitting the subsequent burst of packets. The invention recited in claim 24 specifies in the current packet's header a relationship between the current packet of the current burst of packets and a

subsequent burst of packets thereby allowing the mobile terminal to enter a reduced power-consumption state for a duration, which is based on the time-slice parameter, between receiving the current burst of packets and receiving the subsequent burst of packets. Therefore, unlike the proposed combination of Veschi and Yano, the invention of claim 24 does not require a mobile terminal to receive data and monitor the received data between receiving the current and subsequent bursts of packets in order to determine when transmission of the subsequent burst of packets has begun.

For at least the foregoing reasons, applicant respectfully submits that Veschi and Yano, either alone or in combination, fail to establish prima facie obviousness of claim 24 which is, therefore, in condition for allowance.

Claims 25-29 properly depend upon independent claim 24. Claims 25-29 are, therefore, in condition for allowance for at least the reasons set forth above in connection with claim 24.

1. **Claims 27-29 patentably distinguish over Veschi in view of Yano because Veschi and Yano, either alone or in combination, do not disclose, teach, or suggest placing the time-slice information into lower-layer protocol packet header bits.**

The final office action mailed July 12, 2005, admits that "Veschi may not specifically disclose the encapsulator places the time-slice information (e.g., position identifier 370) into lower layer protocol packet header bits, rather Veschi rather discloses time-slice information is provided within message 330 (e.g., FIG. 3)." (Office action, page 6). The office action then states that "it would have been obvious to one of ordinary skill in the art to shift the location of the position identifier 370 from message portion 330 to header portion 310 (see FIG. 3) since it is

generally considered to be within the ordinary skill in the art to shift the location of parts absent a showing of unexpected results." (Office action, pages 6-7).

Placing the time-slice information into lower layer protocol packet header bits does, however, reduce inter-processor latency relative to placing time-slice information in higher layer protocol packet header bits and/or including the time-slice information with the data portion of a packet, as is stated in paragraphs 41-43, which are reproduced below, of the written description of this application (i.e., application serial no. 10/075,150):

> Referring to Fig. 3, a terminal 12, which can be a mobile terminal, such as a cellular telephone, a personal digital assistant, a portable computer and the like, includes a receiver 14, a client 16, and an antenna 19. A digital broadband broadcast signal 22 is also shown. In the receiver 14, a processor can perform part of the data path processing and can handle lower level protocols, such as layer 2 information, which can include digital video broadcasting digital storage media command and control (DVB DSM-CC) section protocol packets, service information (SI) tables, and multi protocol encapsulated (MPE) packets. Software running on the client 16 can handle layer 3 and higher layers including TCP/IP and application-specific layers. Passing time-slice information, which is specified in absolute—rather than relative—terms, between the processors of the receiver 14 and the client 16 typically introduces undesirable latency into the time-slice information due to potentially variable latency between the two processors.
>
> The amount of time it takes to transfer data between processors may contribute to this type of undesirable latency. For example, when a first processor requests a data bus that is shared between the first processor and a second processor, the bus may be busy performing a different transfer. This type of situation can introduce a variable amount of latency before the first processor can acquire the data bus to perform the desired data transfer. In addition, software latency may be caused by software not reacting immediately to requests, such as a time-slice-reception interrupt. Delays in servicing interrupts can be caused by execution of non-interruptible software by the receiver 14 or the client 16 or by both the receiver 14 and the client 16.
>
> There are also proposals to add time slice information into a higher layer protocol. A problem with these proposed solutions is that higher-level protocols are handled with higher-level software, which is typically run by the client 16. As discussed above, there is variable latency when transferring information between the receiver 14 and client 16. So, when transferring time-slice information from the client 16 to the receiver 14, maintaining accurate time information may not be possible.

For at least these additional foregoing reasons, applicant respectfully submits that Veschi and Yano, either alone or in combination, fail to establish prima facie obviousness of claim 27, which is, therefore, in condition for allowance.

Claims 28-29 properly depend upon independent claim 27. These dependent claims are, therefore, in condition for allowance for at least the reasons set forth above in connection with claim 27.

2. **Claim 29 patentably distinguishes over Veschi in view of Yano because Veschi and Yano, either alone or in combination, do not disclose, teach, or suggest that "the time-slice information is placed into at least one byte reserved, but not used, for media access control addressing."**

The office action mailed July 12, 2005, rejected claim 29 based on the rationale that "while Veschi in view of Yano may not specifically disclose time-slice information (e.g., position identifier 370) is placed into at least one byte reserved but not used for media access control addressing, Veschi suggests such a feature by providing reserved/length field 340 comprising at least one reserved byte for media access control addressing (e.g., see col. 11, line 1-col. 12, line 30)." Applicant respectfully disagrees because "providing reserved/length field 340 comprising at least one reserved byte for media access control addressing" does not disclose, teach, or suggest that "the time-slice information is placed into at least one byte reserved, but not used, for media access control addressing."

For at least the foregoing additional reasons, applicant respectfully submits that Veschi and Yano, either alone or in combination, fail to establish prima facie obviousness of claim 29, which is, therefore, in condition for allowance.

D. **Claims 30-37 and 43-47 patentably distinguish over Veschi in view of Yano because Veschi and Yano, either alone or in combination, do not disclose, teach, or suggest "forming a plurality of packets of a current burst of packets, wherein the plurality of packets includes ... a plurality of respective packet headers for the plurality of packets, wherein the packet headers contain time-slice information that specifies a plurality of relationships between the plurality of packets of the current burst of packets and a subsequent burst of packets, thereby allowing a digital-video-broadcast receiver to enter a reduced power-consumption state for a duration, which is based at least in part on the time-slice information, between receiving the current burst of packets and receiving the subsequent burst of packets."**

The Response to Arguments section of the final office action mailed July 12, 2005, states that "Yano teaches a parameter (e.g., within DPCCH, see FIG. 5) is received which allows the receiver to enter a reduced power-consumption state for a duration (e.g., see col. 5, line 57 – col. 6, line 14; and col. 6, lines 38-59) between a current burst of packets (e.g., DPDCH in a first slot of a frame) and a subsequent burst of packets (e.g., DPDCH in a subsequent slot). Veschi and Yano, however, do not support a proper prima facie case of obviousness of claim 30 because Veschi and Yano, either alone or in combination, do not teach or suggest "forming a plurality of packets of a current burst of packets, wherein the plurality of packets includes ... a plurality of respective packet headers for the plurality of packets, wherein the packet headers contain time-slice information that specifies a plurality of relationships between the plurality of packets of the current burst of packets and a subsequent burst of packets, thereby allowing a digital-video-broadcast receiver to enter a reduced power-consumption state for a duration, which is based at least in part on the time-slice information, between receiving the current burst of packets and receiving the subsequent burst of packets."

Claim 30 recites a method of transmitting time-slicing digital video broadcast information, the method comprising: buffering at least one of digital video content and digital

audio content received from at least one information service provider; and forming a plurality of packets of a current burst of packets, wherein the plurality of packets includes portions of the buffered content and a plurality of respective packet headers for the plurality of packets, wherein the packet headers contain time-slice information that specifies a plurality of relationships between the plurality of packets of the current burst of packets and a subsequent burst of packets, thereby allowing a digital-video-broadcast receiver to enter a reduced power-consumption state for a duration, which is based at least in part on the time-slice information, between receiving the current burst of packets and receiving the subsequent burst of packets.

Veschi and Yano do not teach or suggest the time-slice information of claim 30 as described above. On pages 2 and 4, the office action states that "Yano ... teaches a parameter (e.g., within DPCCH, see FIG. 5) received allows the receiver to enter a reduced power-consumption state for a duration (e.g., see col. 5, line 57 - col. 6, line 14; and col. 6, lines 38-59) between a current burst of packets (e.g., DPDCH data in a first slot of a frame) and a subsequent burst of packets (e.g., DPDCH data in a subsequent slot)."

Yano discloses a system in which a portion of the receiver is always on checking for the presence of control information and data information. This checking occurs at the beginning of each frame of packets. Based on a change in the presence or absence of control and/or data information at the beginning of each frame of packets, signal-processing components of the receiver either enter or exit power-saving mode.

"DPCCH" refers to control information. (Yano, col. 1, lines 64-67) But DPCCH does not include any type of time-slice parameter whatsoever. A transition from the presence of DPCCH (i.e., control information) and/or DPDCH (i.e., data information) to the absence of

DPCCH and/or DPDCH from the received signal is what causes the system disclosed by Yano to enter a reduced power-consumption state. A corresponding transition from the absence to the presence of DPCCH and/or DPDCH causes the system disclosed by Yano to exit the reduced power-consumption state.

As such, Yano, either alone or in combination with Veschi, does not teach time-slice information that is within the packet headers of packets of a current burst of packets and that specifies a plurality of relationships between the packets of the current burst of packets and a subsequent burst of packets thereby allowing a digital-video-broadcast receiver to enter a reduced power-consumption state for a duration, which is based on the time-slice information, between receiving the current burst of packets and receiving the subsequent burst of packets.

Applicant respectfully disagrees with virtually the entire Response to Arguments section of the final office action mailed July 12, 2005. In pertinent part, that section characterizes applicant's remarks, which appear at pages 11-13 of the Amendment filed May 16, 2005, as setting forth an interpretation in which a "time based parameter" is not received between current and subsequent bursts of packets. Applicant respectfully disagrees with that characterization.

Claim 30 recites that the receiver is allowed to enter a reduced power-consumption state between receiving the current burst of packets and receiving the subsequent burst of packets, and the duration of the reduced power-consumption is based on the time-slice information, which is contained in the packet headers of the current burst of packets. As discussed in more detail above, Veschi and Yano, either alone or in combination, do not teach or suggest time-slice information that is contained in the packet headers of the current burst of packets and that specifies a plurality of relationships between the packets of the current burst of packets and a

subsequent burst of packets thereby allowing a digital-video-broadcast receiver to enter a reduced power-consumption state for a duration, which is based on the time-slice information, between receiving the current burst of packets and receiving the subsequent burst of packets.

The invention as recited in claim 30 provides a significant functional advantage over the combination of Veschi and Yano proposed in the final office action mailed July 12, 2005. During any period between transmission of bursts of packets, the combination of Veschi and Yano proposed in the final office action mailed July 12, 2005, would need to continuously receive and monitor any received data to determine when the transmitter has started transmitting the subsequent burst of packets. The invention recited in claim 30 specifies in the current burst's packet headers relationships between the packets of the current burst of packets and a subsequent burst of packets thereby allowing a digital-video-broadcast receiver to enter a reduced power-consumption state for a duration, which is based on the time-slice information, between receiving the current burst of packets and receiving the subsequent burst of packets. Therefore, unlike the proposed combination of Veschi and Yano, the invention of claim 30 does not require a receiver to receive data and monitor the received data between receiving the current and subsequent bursts of packets in order to determine when transmission of the subsequent burst of packets has begun.

For at least the foregoing reasons, applicant respectfully submits that Veschi and Yano, either alone or in combination, fail to establish prima facie obviousness of claim 30 which is, therefore, in condition for allowance.

Claims 31-37 and 43-47 properly depend upon independent claim 30 discussed above. These dependent claims are, therefore, in condition for allowance for at least the reasons set forth above in connection with claim 30.

1. **Claims 35-37 and 45-47 patentably distinguish over Veschi in view of Yano because Veschi and Yano, either alone or in combination, do not disclose, teach, or suggest placing the time-slice information into lower-layer protocol packet header bits.**

The final office action mailed July 12, 2005, admits that "Veschi may not specifically disclose the encapsulator places the time-slice information (e.g., position identifier 370) into lower layer protocol packet header bits, rather Veschi rather discloses time-slice information is provided within message 330 (e.g., FIG. 3)." (Office action, page 6). The office action then states that "it would have been obvious to one of ordinary skill in the art to shift the ocation of the position identifier 370 from message portion 330 to header portion 310 (see FIG. 3) since it is generally considered to be within the ordinary skill in the art to shift the location of parts absent a showing of unexpected results." (Office action, pages 6-7).

Placing the time-slice information into lower layer protocol packet header bits does, however, reduce inter-processor latency relative to placing time-slice information in higher layer protocol packet header bits and/or including the time-slice information with the data portion of a packet, as is stated in paragraphs 41-43, which are reproduced below, of the written description of this application (i.e., application serial no. 10/075,150):

> Referring to Fig. 3, a terminal 12, which can be a mobile terminal, such as a cellular telephone, a personal digital assistant, a portable computer, and the like, includes a receiver 14, a client 16, and an antenna 19. A digital broadband broadcast signal 22 is also shown. In the receiver 14, a processor can perform part of the data path processing and can handle lower level protocols, such as layer 2 information, which can include digital video broadcasting digital storage media command and control (DVB DSM-CC) section protocol packets, service information (SI) tables, and multi protocol encapsulated (MPE) packets. Software running on the client 16 can handle layer 3 and higher layers including TCP/IP and application-specific layers. Passing time-slice information, which is specified in absolute—rather than relative—terms, between the processors of the receiver 14 and the client 16 typically introduces undesirable latency into the time-slice information due to potentially variable latency between the two processors.

> The amount of time it takes to transfer data between processors may contribute to this type of undesirable latency. For example, when a first processor requests a data bus that is shared between the first processor and a second processor, the bus may be busy performing a different transfer. This type of situation can introduce a variable amount of latency before the first processor can acquire the data bus to perform the desired data transfer. In addition, software latency may be caused by software not reacting immediately to requests, such as a time-slice-reception interrupt. Delays in servicing interrupts can be caused by execution of non-interruptible software by the receiver 14 or the client 16 or by both the receiver 14 and the client 16.
>
> There are also proposals to add time slice information into a higher layer protocol. A problem with these proposed solutions is that higher-level protocols are handled with higher-level software, which is typically run by the client 16. As discussed above, there is variable latency when transferring information between the receiver 14 and client 16. So, when transferring time-slice information from the client 16 to the receiver 14, maintaining accurate time information may not be possible.

For at least these additional foregoing reasons, applicant respectfully submits that Veschi and Yano, either alone or in combination, fail to establish prima facie obviousness of claim 35, which is, therefore, in condition for allowance.

Claims 36-37 and 45-47 properly depend upon independent claim 35. These dependent claims are, therefore, in condition for allowance for at least the reasons set forth above in connection with claim 35.

2. **Claims 37 and 47 patentably distinguish over Veschi in view of Yano because Veschi and Yano, either alone or in combination, do not disclose, teach, or suggest that "the time-slice information is placed into at least one byte reserved, but not used, for media access control addressing."**

The office action mailed July 12, 2005, rejected claims 37 and 47 based on the rationale that "while Veschi in view of Yano may not specifically disclose time-slice information (e.g., position identifier 370) is placed into at least one byte reserved but not used for media access control addressing, Veschi suggests such a feature by providing reserved/length field 340

comprising at least one reserved byte for media access control addressing (e.g., see col. 11, line 1-col. 12, line 30)." Applicant respectfully disagrees because "providing reserved/length field 340 comprising at least one reserved byte for media access control addressing" does not disclose, teach, or suggest that "the time-slice information is placed into at least one byte reserved, but not used, for media access control addressing."

For at least the foregoing additional reasons, applicant respectfully submits that Veschi and Yano, either alone or in combination, fail to establish prima facie obviousness of claim 37, which is, therefore, in condition for allowance.

Claim 47 properly depends upon independent claim 37 discussed above. Claim 47 is, therefore, in condition for allowance for at least the reasons set forth above in connection with claim 37.

E. **Claims 38-42 and 48-51 patentably distinguish over Veschi in view of Yano because Veschi and Yano, either alone or in combination, do not disclose, teach, or suggest "receiving a current packet of a current burst of packets and a subsequent burst of packets, wherein the current packet includes time-slice information, ... wherein the time-slice information specifies a relationship between the current packet of the current burst of packets and the subsequent burst of packets; ... and decoding the buffered time-slice information to extract information that specifies the relationship between the current packet and the subsequent burst of packets, thereby allowing a digital video broadcast receiver to enter a reduced power-consumption state for a duration, which is based at least in part on the extracted information, between receiving the current burst of packets and receiving the subsequent burst of packets."**

The Response to Arguments section of the final office action mailed July 12, 2005, states that "Yano teaches a parameter (e.g., within DPCCH, see FIG. 5) is received which allows the receiver to enter a reduced power-consumption state for a duration (e.g., see col. 5, line 57 – col. 6, line 14; and col. 6, lines 38-59) between a current burst of packets (e.g., DPDCH in a first slot

of a frame) and a subsequent burst of packets (e.g., DPDCH in a subsequent slot). Veschi and Yano, however, do not support a proper prima facie case of obviousness of claim 14 because Veschi and Yano, either alone or in combination, do not teach or suggest "receiving a current packet of a current burst of packets and a subsequent burst of packets, wherein the current packet includes time-slice information, ... wherein the time-slice information specifies a relationship between the current packet of the current burst of packets and the subsequent burst of packets; ... and decoding the buffered time-slice information to extract information that specifies the relationship between the current packet and the subsequent burst of packets, thereby allowing a digital video broadcast receiver to enter a reduced power-consumption state for a duration, which is based at least in part on the extracted information, between receiving the current burst of packets and receiving the subsequent burst of packets."

Claim 38 recites a method of receiving time-slicing digital video broadcast information, the method comprising: receiving a current packet of a current burst of packets and a subsequent burst of packets, wherein the current packet includes time-slice information, wherein the current packet and the subsequent burst of packets include at least one of digital video content and digital audio content from an information service provider and have been transmitted by a digital video broadcast transmitter, wherein the time-slice information specifies a relationship between the current packet of the current burst of packets and the subsequent burst of packets; buffering the time-slice information; and decoding the buffered time-slice information to extract information that specifies the relationship between the current packet and the subsequent burst of packets, thereby allowing a digital video broadcast receiver to enter a reduced power-consumption state

for a duration, which is based at least in part on the extracted information, between receiving the current burst of packets and receiving the subsequent burst of packets.

Veschi and Yano do not teach or suggest the time-slice information of claim 14 as described above. On pages 2 and 4, the office action states that "Yano ... teaches a parameter (e.g., within DPCCH, see FIG. 5) received allows the receiver to enter a reduced power-consumption state for a duration (e.g., see col. 5, line 57 - col. 6, line 14; and col. 6, lines 38-59) between a current burst of packets (e.g., DPDCH data in a first slot of a frame) and a subsequent burst of packets (e.g., DPDCH data in a subsequent slot)."

Yano discloses a system in which a portion of the receiver is always on checking for the presence of control information and data information. This checking occurs at the beginning of each frame of packets. Based on a change in the presence or absence of control and/or data information at the beginning of each frame of packets, signal-processing components of the receiver either enter or exit power-saving mode.

"DPCCH" refers to control information. (Yano, col. 1, lines 64-67) But DPCCH does not include any type of time-slice parameter whatsoever. A transition from the presence of DPCCH (i.e., control information) and/or DPDCH (i.e., data information) to the absence of DPCCH and/or DPDCH from the received signal is what causes the system disclosed by Yano to enter a reduced power-consumption state. A corresponding transition from the absence to the presence of DPCCH and/or DPDCH causes the system disclosed by Yano to exit the reduced power-consumption state.

As such, Yano, either alone or in combination with Veschi, does not teach time-slice information that is within a packet header of a current packet of a current burst of packets and

that specifies a relationship between the current packet of the current burst of packets and a subsequent burst of packets thereby allowing a digital-video-broadcast receiver to enter a reduced power-consumption state for a duration, which is based on information extracted from the time-slice information, between receiving the current burst of packets and receiving the subsequent burst of packets.

Applicant respectfully disagrees with virtually the entire Response to Arguments section of the final office action mailed July 12, 2005. In pertinent part, that section characterizes applicant's remarks, which appear at pages 11-13 of the Amendment filed May 16, 2005, as setting forth an interpretation in which a "time based parameter" is not received between current and subsequent bursts of packets. Applicant respectfully disagrees with that characterization.

Claim 38 recites that the digital video broadcast receiver is allowed to enter a reduced power-consumption state between receiving the current burst of packets and receiving the subsequent burst of packets, and the duration of the reduced power-consumption is based on information extracted from the time-slice information, which is contained in the current packet's header. As discussed in more detail above, Veschi and Yano, either alone or in combination, do not teach or suggest time-slice information that is contained in the current packet's header and that specifies a relationship between the current packet of the current burst of packets and a subsequent burst of packets thereby allowing a digital video broadcast receiver to enter a reduced power-consumption state for a duration, which is based on information extracted from the time-slice information, between receiving the current burst of packets and receiving the subsequent burst of packets.

The invention as recited in claim 38 provides a significant functional advantage over the combination of Veschi and Yano proposed in the final office action mailed July 12, 2005. During any period between transmission of bursts of packets, the combination of Veschi and Yano proposed in the final office action mailed July 12, 2005, would need to continuously receive and monitor any received data to determine when the transmitter has started transmitting the subsequent burst of packets. The invention recited in claim 38 specifies in the current packet's header a relationship between the current packet of the current burst of packets and a subsequent burst of packets thereby allowing the digital video broadcast receiver to enter a reduced power-consumption state for a duration, which is based on information extracted from the time-slice information, between receiving the current burst of packets and receiving the subsequent burst of packets. Therefore, unlike the proposed combination of Veschi and Yano, the invention of claim 38 does not require a digital video broadcast receiver to receive data and monitor the received data between receiving the current and subsequent bursts of packets in order to determine when transmission of the subsequent burst of packets has begun.

For at least the foregoing reasons, applicant respectfully submits that Veschi and Yano, either alone or in combination, fail to establish prima facie obviousness of claim 38 which is, therefore, in condition for allowance.

Claims 39-42 and 48-51 properly depend upon independent claim 38. Claims 39-42 and 48-51 are, therefore, in condition for allowance for at least the reasons set forth above in connection with claim 38.

1. **Claims 40-42 and 49-51 patentably distinguish over Veschi in view of Yano because Veschi and Yano, either alone or in combination, do not**

disclose, teach, or suggest decoding the time-slice information from lower-layer protocol packet header bits.

The final office action mailed July 12, 2005, admits that "Veschi may not specifically disclose the encapsulator places the time-slice information (e.g., position identifier 370) into lower layer protocol packet header bits, rather Veschi rather discloses time-slice information is provided within message 330 (e.g., FIG. 3)." (Office action, page 6). The office action then states that "it would have been obvious to one of ordinary skill in the art to shift the ocation of the position identifier 370 from message portion 330 to header portion 310 (see FIG. 3 since it is generally considered to be within the ordinary skill in the art to shift the location of parts absent a showing of unexpected results." (Office action, pages 6-7).

Placing the time-slice information into lower layer protocol packet header bits does, however, reduce inter-processor latency relative to placing time-slice information in higher layer protocol packet header bits and/or including the time-slice information with the data portion of a packet, as is stated in paragraphs 41-43, which are reproduced below, of the written description of this application (i.e., application serial no. 10/075,150):

> Referring to Fig. 3, a terminal 12, which can be a mobile terminal, such as a cellular telephone, a personal digital assistant, a portable computer and the like, includes a receiver 14, a client 16, and an antenna 19. A digital broadband broadcast signal 22 is also shown. In the receiver 14, a processor can perform part of the data path processing and can handle lower level protocols, such as layer 2 information, which can include digital video broadcasting digital storage media command and control (DVB DSM-CC) section protocol packets, service information (SI) tables, and multi protocol encapsulated (MPE) packets. Software running on the client 16 can handle layer 3 and higher layers including TCP/IP and application-specific layers. Passing time-slice information, which is specified in absolute—rather than relative—terms, between the processors of the receiver 14 and the client 16 typically introduces undesirable latency into the time-slice information due to potentially variable latency between the two processors.
>
> The amount of time it takes to transfer data between processors may contribute to this type of undesirable latency. For example, when a first processor

> requests a data bus that is shared between the first processor and a second processor, the bus may be busy performing a different transfer. This type of situation can introduce a variable amount of latency before the first processor can acquire the data bus to perform the desired data transfer. In addition, software latency may be caused by software not reacting immediately to requests, such as a time-slice-reception interrupt. Delays in servicing interrupts can be caused by execution of non-interruptible software by the receiver 14 or the client 16 or by both the receiver 14 and the client 16.
>
> There are also proposals to add time slice information into a higher layer protocol. A problem with these proposed solutions is that higher-level protocols are handled with higher-level software, which is typically run by the client 16. As discussed above, there is variable latency when transferring information between the receiver 14 and client 16. So, when transferring time-slice information from the client 16 to the receiver 14, maintaining accurate time information may not be possible.

For at least these additional foregoing reasons, applicant respectfully submits that Veschi and Yano, either alone or in combination, fail to establish prima facie obviousness of claim 40, which is, therefore, in condition for allowance.

Claims 41-42 and 49-51 properly depend upon independent claim 40. These dependent claims are, therefore, in condition for allowance for at least the reasons set forth above in connection with claim 40.

2. **Claims 42 and 51 patentably distinguish over Veschi in view of Yano because Veschi and Yano, either alone or in combination, do not disclose, teach, or suggest that "the time-slice information is decoded from at least one byte reserved, but not used, for media access control addressing."**

The office action mailed July 12, 2005, rejected claims 42 and 51 based on the rationale that "while Veschi in view of Yano may not specifically disclose time-slice information (e.g., position identifier 370) is placed into at least one byte reserved but not used for media access control addressing, Veschi suggests such a feature by providing reserved/length field 340 comprising at least one reserved byte for media access control addressing (e.g., see col. 11, line

1-col. 12, line 30)." Applicant respectfully disagrees because "providing reserved/length field 340 comprising at least one reserved byte for media access control addressing" does not disclose, teach, or suggest that "the time-slice information is decoded from at least one byte reserved, but not used, for media access control addressing."

For at least the foregoing additional reasons, applicant respectfully submits that Veschi and Yano, either alone or in combination, fail to establish prima facie obviousness of claim 42, which is, therefore, in condition for allowance.

Claim 51 properly depends upon independent claim 42 discussed above. Claim 51 is, therefore, in condition for allowance for at least the reasons set forth above in connection with claim 42.

Respectfully submitted,

BANNER & WITCOFF, LTD.

Dated: November 22, 2005

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VIII. CLAIMS APPENDIX

1. A time-slicing digital video broadcasting transmitter system comprising

a buffer that receives at least one of digital video content and digital audio content from an information service provider;

an encapsulator that receives the buffered content from the buffer and that forms at least one packet header for a current packet of a current burst of packets, wherein the current packet contains a first portion of the buffered content, wherein the at least one packet header contains time-slice information that includes a time-slice parameter specifying a relationship between the current packet of the current burst of packets and a subsequent burst of packets that contains a second portion of the buffered content; and

a digital video broadcast transmitter that transmits the current burst of packets and the subsequent burst of packets, thereby allowing a digital-video-broadcast receiver to enter a reduced power-consumption state for a duration, which is based at least in part on the time-slice parameter, between receiving the current burst of packets and receiving the subsequent burst of packets.

2. The time-slicing digital broadcasting transmitter system of claim 1, wherein the time-slice information specifies, in a way that is independent of a number of data packet-transmission intervals, an amount of time that elapses between transmission of the current packet and transmission of a first-transmitted packet of the subsequent burst of packets.

3. The time-slicing digital broadcasting transmitter system of claim 1, wherein the time-slice information specifies a time-slice duration for transmitting the current burst of packets.

4. The time-slicing digital broadcasting transmitter system of claim 1, wherein the time-slice information includes a time-slice index for numbering originally-transmitted bursts of packets.

5. The time-slicing digital broadcasting transmitter system of claim 1, wherein the buffer is substantially large enough to store at least two full bursts of data from the information service provider and any data to be transmitted between transmission of the two full bursts of data.

6. The time-slicing digital broadcasting transmitter system of claim 5, wherein the amount of time that elapses between transmitting the current packet and transmitting the first-transmitted packet of the subsequent burst is determined based at least in part upon how many packets will be transmitted between transmitting the current packet and transmitting the subsequent packet.

7. The time-slicing digital broadcasting transmitter system of claim 2, wherein the amount of time that elapses between transmitting the current packet and transmitting the first-transmitted packet of the subsequent burst is determined based at least in part upon an amount of transmitter-idle time between transmission bursts.

8. The time-slicing digital broadcasting transmitter system of claim 1, wherein the buffer comprises a buffer selected from the group consisting of: an elastic buffer, a first-in, first-out (FIFO) buffer, a ring buffer, and a dual buffer having separate input and output sections.

9. The time-slicing digital broadcasting transmitter system of claim 1, wherein the encapsulator places the time-slice information into lower layer protocol packet header bits.

10. The time-slicing digital broadcasting transmitter system of claim 9, wherein the lower layer protocol is DVB DSM-CC section protocol.

11. The time-slicing digital broadcasting transmitter system of claim 10, wherein the time-slice information is placed into at least one byte reserved, but not used, for media access control addressing.

12. The time-slicing digital broadcasting transmitter system of claim 1, wherein the time-slice information includes a down-counting packet index for a plurality of packets within the current burst of packets.

13. The time-slicing digital broadcasting transmitter system of claim 1, wherein the time-slice information includes a time slice boundary indication that indicates whether the current packet is a first-transmitted packet of the current burst of packets.

14. A mobile terminal that receives time-slicing digital video broadcast information, the mobile terminal comprising:

a digital video broadcast receiver that receives a current burst of packets and a subsequent burst of packets, wherein the current burst of packets includes a current packet that includes at least one of digital video content and digital audio content and that includes time-slice information, wherein the current burst of packets and the subsequent burst of packets have been transmitted by a digital video broadcast transmitter;

a buffer that receives the current burst of packets and the subsequent burst of packets; and

an application processor that receives the current packet's buffered content and time-slice information from the buffer and that decodes the current packet's buffered time-slice information thereby extracting information that specifies a relationship between the current packet of the current burst of packets and the subsequent burst of packets, thereby allowing the mobile terminal to enter a reduced power-consumption state for a duration, which is based at least in part on the extracted information, between receiving the current burst of packets and receiving the subsequent burst of packets.

15. The mobile terminal of claim 14, wherein the time-slice information includes a down-counting packet index for a plurality of packets within the current burst of packets.

16. The mobile terminal of claim 15, wherein the time-slice information includes a time slice boundary indication that indicates whether the current packet is a first-transmitted packet of the current burst of packets.

17. The mobile terminal of claim 14, wherein the time-slice information includes an up-counting packet index for a plurality of packets within the current burst of packets.

18. The mobile terminal of claim 17, wherein the time-slice information includes a time slice boundary indication that indicates whether the current packet is a last-transmitted packet of the current burst of packets.

19. The mobile terminal of claim 14, wherein the time-slice information includes a next burst indication that indicates whether the subsequent burst of packets is an original burst or a copy burst.

20. The mobile terminal of claim 14, wherein the time-slice information specifies, in a way that is independent of a number of data packet-transmission intervals, an amount of time between receiving the current packet and a first-received packet of the subsequent burst of packets.

21. The mobile terminal of claim 14, wherein the time-slice information is decoded from lower layer protocol packet header bits.

22. The mobile terminal of claim 21, wherein the lower layer protocol is DVB DSM-CC section protocol.

23. The mobile terminal of claim 22, wherein the time-slice information is decoded from at least one byte reserved, but not used, for media access control addressing.

24. A time-slicing digital video broadcasting system comprising:

a digital video broadcast transmitter system that transmits bursts of packets, including a current burst of packets and a subsequent burst of packets, wherein the current burst of packets

includes a current packet that includes at least one of digital video content and digital audio content from at least one data service of at least one information service provider and that includes time-slice information that specifies a relationship between the current packet of the current burst of packets and the subsequent burst of packets; and

a digital video broadcast receiver system that receives the current burst of packets and the subsequent burst of packets and that decodes the time-slice information thereby extracting information that specifies the relationship between the current packet and the subsequent burst of packets, thereby allowing the digital video broadcast receiver system to enter a reduced power-consumption state for a duration, which is based at least in part on the extracted information, between receiving the current burst of packets and receiving the subsequent burst of packets.

25. The time-slicing digital broadcasting system of claim 24, wherein the time-slice information specifies, in a way that is independent of a number of data packet-transmission intervals, an amount of time between transmitting the current packet and a first-transmitted packet of the subsequent burst of packets.

26. The time-slicing digital broadcasting system of claim 25, wherein the subsequent burst of packets is a copy of the current burst of packets.

27. The time-slicing digital broadcasting system of claim 24, wherein the transmitter comprises an encapsulator that places the time-slice information into lower-layer protocol packet header bits.

28. The time-slicing digital broadcasting system of claim 27, wherein the lower layer protocol is DVB DSM-CC section protocol.

29. The time-slicing digital broadcasting system of claim 28, wherein the time-slice information is placed into at least one byte reserved, but not used, for media access control addressing.

30. A method of transmitting time-slicing digital video broadcast information, the method comprising:

buffering at least one of digital video content and digital audio content received from at least one information service provider; and

forming a plurality of packets of a current burst of packets, wherein the plurality of packets includes portions of the buffered content and a plurality of respective packet headers for the plurality of packets, wherein the packet headers contain time-slice information that specifies a plurality of relationships between the plurality of packets of the current burst of packets and a subsequent burst of packets, thereby allowing a digital-video-broadcast receiver to enter a reduced power-consumption state for a duration, which is based at least in part on the time-slice information, between receiving the current burst of packets and receiving the subsequent burst of packets.

31. The method of claim 30, wherein the time-slice information specifies a plurality of different amounts of time between transmitting a plurality of packets of the current burst and transmitting a first-transmitted packet of the subsequent burst.

32. The method of claim 30, wherein the time-slice information specifies a plurality of different packet indexes for a plurality of packets of the current burst.

33. The method of claim 30, wherein the time-slice information specifies whether the subsequent burst is a copy of the current burst.

34. The method of claim 30, wherein the time-slice information specifies a duration of the current burst.

35. The method of claim 30, wherein the time-slice information is placed into lower layer protocol packet header bits.

36. The method of claim 35, wherein the lower layer protocol is DVB DSM-CC section protocol.

37. The method of claim 36, wherein the time-slice information is placed into at least one byte reserved, but not used, for media access control addressing.

38. A method of receiving time-slicing digital video broadcast information, the method comprising:

receiving a current packet of a current burst of packets and a subsequent burst of packets, wherein the current packet includes time-slice information, wherein the current packet and the subsequent burst of packets include at least one of digital video content and digital audio content from an information service provider and have been transmitted by a digital video broadcast

transmitter, wherein the time-slice information specifies a relationship between the current packet of the current burst of packets and the subsequent burst of packets;

buffering the time-slice information; and

decoding the buffered time-slice information to extract information that specifies the relationship between the current packet and the subsequent burst of packets, thereby allowing a digital video broadcast receiver to enter a reduced power-consumption state for a duration, which is based at least in part on the extracted information, between receiving the current burst of packets and receiving the subsequent burst of packets.

39. The method of claim 38, wherein the time-slice information specifies, in a way that is independent of a number of data packet-transmission intervals, an amount of time between transmitting the current packet and transmitting the first-transmitted packet of the subsequent burst.

40. The method of claim 38, wherein the time-slice information is decoded from lower layer protocol packet header bits.

41. The method of claim 40, wherein the lower layer protocol is DVB DSM-CC section protocol.

42. The method of claim 41, wherein the time-slice information is decoded from at least one byte that is reserved, but not used, for media access control addressing.

43. A computer-readable medium containing computer-executable instructions for transmitting time-slicing digital broadcast information by performing the steps recited in claim 30.

44. A computer-readable medium containing computer-executable instructions for transmitting time-slicing digital broadcast information by performing the steps recited in claim 31.

45. A computer-readable medium containing computer-executable instructions for transmitting time-slicing digital broadcast information by performing the steps recited in claim 35.

46. A computer-readable medium containing computer-executable instructions for transmitting time-slicing digital broadcast information by performing the steps recited in claim 36.

47. A computer-readable medium containing computer-executable instructions for transmitting time-slicing digital broadcast information by performing the steps recited in claim 37.

48. A computer-readable medium containing computer-executable instructions for receiving time-slicing digital broadcast information by performing the steps recited in claim 39.

49. A computer-readable medium containing computer-executable instructions for receiving time-slicing digital broadcast information by performing the steps recited in claim 40.

50. A computer-readable medium containing computer-executable instructions for receiving time-slicing digital broadcast information by performing the steps recited in claim 41.

51. A computer-readable medium containing computer-executable instructions for receiving time-slicing digital broadcast information by performing the steps recited in claim 42.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.